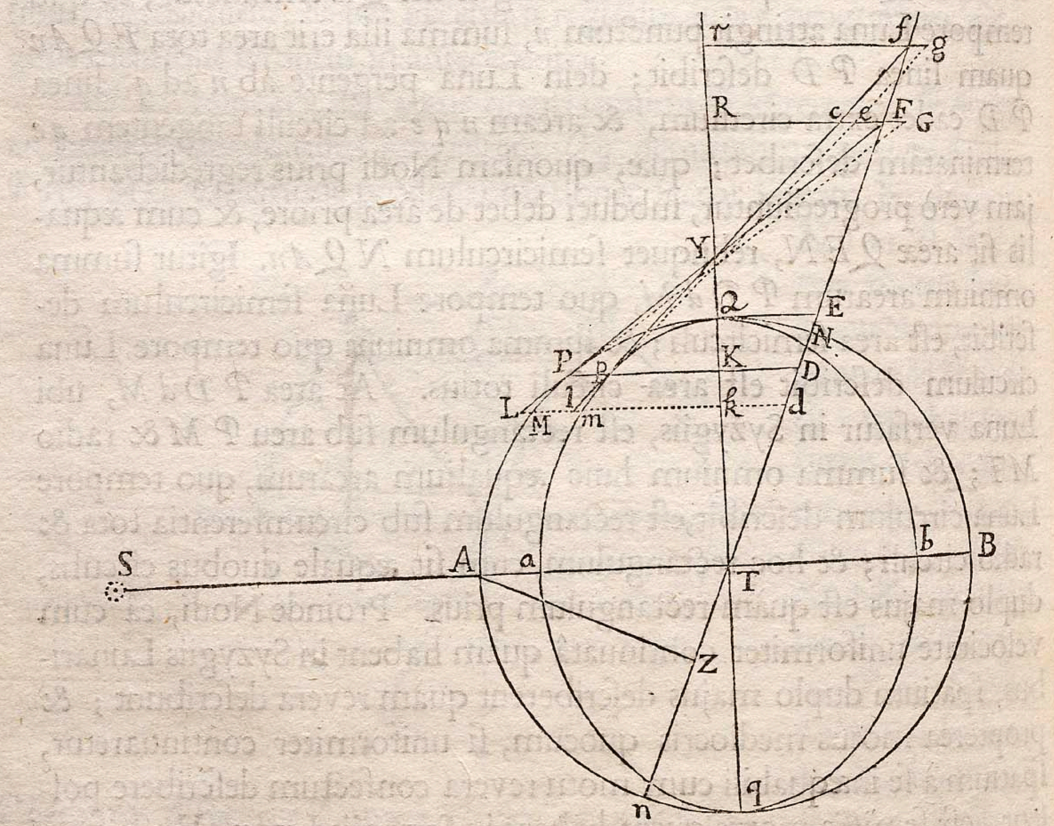
$16''. 35'''. 16^{iv}. 36^{v}$. Et cum motus horarius Nodorum ſemper ſit ut AZ *qu.* & area $PDdM$ conjunctim, & propterea motus horarius Nodorum in Syzygiis Lunæ ut AZ *qu.* & area $PDdM$ conjunctim, id eſt (ob datam aream $PDdM$ in Syzygiis deſcriptam) ut AZ *qu.* erit etiam motus mediocris ut AZ *qu.* atque adeo hic motus, ubi Nodi extra Quadraturas verſantur, erit ad $16''. 35'''. 16^{iv}. 36^{v}$. ut AZ *qu.* ad AT *qu.* *Q.E.D.*

Prop. XXXI. Prob. XI.

Invenire motum horarium Nodorum Lunæ in Orbe Elliptico.

Deſignet $Qpmaq$ Ellipſim, axe majore Qq, minore ab deſcriptam, QAq circulum circumſcriptum, T Terram in utriuſque



centro communi, S Solem, p Lunam in Ellipſi moventem, & pm arcum quem data temporis particula quam minima deſcribit, N & n

Nodos linea Nn junctos, pK & mk perpendicula in axem Qq demiſſa & hinc inde producta, donec occurrant circulo in P & M, & lineæ Nodorum in D & d. Et ſi Luna, radio ad Terram ducto, aream deſcribat tempori proportionalem, erit motus Nodi in Ellipſi ut area $pKkm$.

Nam ſi PF tangat circulum in P, & producta occurrat TN in F, & pf tangat Ellipſin in p & producta occurrat eidem TN in f, conveniant autem hæ Tangentes in axe TQ ad Y; & ſi ML deſignet ſpatium quod Luna in circulo revolvens, interea dum deſcribit arcum PM, urgente & impellente vi prædicta $3IT$, motu tranſverſo deſcribere poſſet, & ml deſignet ſpatium quod Luna in Ellipſi revolvens eodem tempore, urgente etiam vi $3IT$, deſcribere poſſet; & producantur LP & lp donec occurrant plano Eclipticæ in G & g; & jungantur FG & fg, quarum FG producta ſecet pf, pg & TQ in c, e & R reſpectivè, & fg producta ſecet TQ in r: Quoniam vis $3IT$ ſeu $3PK$ in circulo eſt ad vim $3IT$ ſeu $3pK$ in Ellipſi, ut PK ad pK, ſeu AT ad aT; erit ſpatium ML vi priore genitum, ad ſpatium ml vi poſteriore genitum, ut PK ad pK, id eſt ob ſimiles figuras $PYKp$ & $FYRc$, ut FR ad cR. Eſt autem ML ad FG (ob ſimilia triangula PLM, PGF) ut PL ad PG, hoc eſt (ob parallelas Lk, PK, GR) ut pl ad pe, id eſt (ob ſimilia triangula plm, cpe) ut lm ad ce; & inversè ut LM eſt ad lm, ſeu FR ad cR, ita eſt FG ad ce. Et propterea ſi fg eſſet ad ce ut fY ad cY, id eſt ut fr ad cR, (hoc eſt ut fr ad FR & FR ad cR conjunctim, id eſt ut fT ad FT & FG ad ce conjunctim,) quoniam ratio FG ad ce utrinque ablata relinquit rationes fg ad FG & fT ad FT, foret fg ad FG ut fT ad FT; propterea quod anguli, quos FG & fg ſubtenderent ad Terram T, æquarentur inter ſe. Sed anguli illi (per ea quæ in præcedente Propoſitione expoſuimus) ſunt motus Nodorum, quo tempore Luna in circulo arcum PM, in Ellipſi arcum pm percurrit: & propterea motus Nodorum in Circulo & Ellipſi æquarentur inter ſe. Hæc ita ſe haberent, ſi modo fg eſſet ad ce ut fY ad cY,